

## CLAIMS

1. A power supply apparatus comprising:
  - a semiconductor element, disposed in the path of a main current that is a subject of power control, and formed by using a GaN compound; and
  - a control unit which controls conduction of the main current flowing through said semiconductor element.
2. The power supply apparatus according to claim 1, wherein said semiconductor element is provided in plurality, and said semiconductor elements are connected in parallel.
3. The power supply apparatus according to claim 2, wherein said semiconductor elements are arranged so as to be adjacent to each other.
4. The power supply apparatus according to claim 1, wherein said semiconductor element is a GaN-FET.
- 20 5. A power supply apparatus comprising:
  - a semiconductor element, disposed in the path of a main current that is a subject of power control, and formed by using a GaN compound; and
  - a control unit which conducts switching control on conduction of the main current flowing through said

semiconductor element.

6. The power supply apparatus according to claim 5,  
wherein said semiconductor element is provided in plurality,  
5 and said semiconductor elements are connected in parallel.

7. The power supply apparatus according to claim 6,  
wherein said semiconductor elements are arranged so as to  
be adjacent to each other.

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8. The power supply apparatus according to claim 5,  
wherein said semiconductor element is a GaN-FET.

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9. A power supply circuit having a transformer, and which  
conducts on/off control on voltage applied to a primary  
winding of said transformer, and thereby supplies a  
stabilized power supply voltage to a secondary winding side  
of said transformer, further comprising:

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a GaN-FET connected to the primary winding of said

transformer and on/off-controlled by a gate signal.

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10. A large current load current load control apparatus  
that conducts on/off control on a current supplied from a  
power source according to a predetermined instruction and  
supplies a resultant current to an electric load, said large

current load current load control apparatus comprising:

a GaN-FET, connected to a power source line that connects said source to said load, and which conducts the on/off control.